WHAT IS CLAIMED

1. For use with a DC-DC voltage converter having a controller which generates a pulse width modulation (PWM) switching signal that switchably controls operation a switching circuit containing first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output terminal, an arrangement for deriving a measure of current through said inductor comprising:

a pilot electronic power switching device coupled with one of said first and second electronic power switching devices and having a current flow path therethrough coupled to a current measurement terminal; and

a controller that is operative to time division multiplex the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices.

2. The arrangement according to claim 1, further including an auxiliary electronic power switching device having a current flow path therethrough coupled in parallel with a current flow path through one of said first and second electronic power switching devices, and control electrode thereof

coupled in common with a control electrode of said pilot electronic power switching device.

3. The arrangement according to claim 1, wherein said one of said first and second electronic power switching devices comprises a high side electronic power switching device.

4. The arrangement according to claim 1, wherein said controller is operative to periodically time division multiplex the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices.

5. The arrangement according to claim 1, wherein said controller is operative to time division multiplex the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices in response to a prescribed operational condition of said DC-DC voltage converter.

6. The arrangement according to claim 5, wherein said controller is operative to activate said pilot electronic power switching device in response to a transient in said current through said inductor.

7. For use with a DC-DC voltage converter having a controller which generates a pulse width modulation (PWM) switching signal that switchably controls operation a switching circuit containing first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output voltage terminal, an arrangement for deriving a measure of current through said inductor comprising:

an auxiliary electronic power switching circuit containing an auxiliary electronic power switching device having a current flow path therethrough coupled in parallel with a current flow path through one of said first and second electronic power switching devices, and a pilot electronic power switching device having a control electrode thereof coupled in common with a control electrode of said auxiliary electronic power switching device, said pilot electronic power switching device having a current flow path therethrough coupled to a current measurement terminal; and

a controller that is operative to time division multiplex the activation of said auxiliary electronic power switching circuit relative to the activation of said one of said first and second electronic power switching devices.

8. The arrangement according to claim 7, wherein said one of said first and second electronic power switching devices comprises a high side electronic power switching device.

9. The arrangement according to claim 7, wherein said controller is operative to periodically time division multiplex the activation of said auxiliary electronic power switching circuit relative to the activation of said one of said first and second electronic power switching devices.

10. The arrangement according to claim 1, wherein said controller is operative to time division multiplex the activation of said auxiliary electronic power switching circuit relative to the activation of said one of said first and second electronic power switching devices in response to a prescribed operational condition of said DC-DC voltage converter.

11. The arrangement according to claim 10, wherein said controller is operative to activate said auxiliary electronic power switching circuit in response to a transient in said current through said inductor.

12. For use with a DC-DC voltage converter having a controller which generates a pulse width modulation (PWM) switching signal that switchably

controls operation a switching circuit containing first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output voltage terminal, a method for deriving a measure of current through said inductor comprising the steps of:

(a) coupling a pilot electronic power switching device to one of said first and second electronic power switching devices, said pilot electronic switching device having a current flow path therethrough coupled to a current measurement terminal; and

(b) time division multiplexing the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices.

13. The method according to claim 12, wherein step (a) includes coupling a current flow path of an auxiliary electronic power switching device in parallel with a current flow path through one of said first and second electronic power switching devices, and coupling a control electrode thereof in common with a control electrode of said pilot electronic power switching device, so that step (b) comprises time division multiplexing the activation of said auxiliary electronic power switching device relative

to the activation of said one of said first and second electronic power switching devices.

14. The method according to claim 12, wherein said one of said first and second electronic power switching devices comprises a high side electronic power switching device.

15. The method according to claim 12, wherein step (b) comprises periodically time division multiplexing the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices.

16. The method according to claim 12, wherein step (b) comprises time division multiplexing the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices in response to a prescribed operational condition of said DC-DC voltage converter.

17. The method according to claim 16, wherein step (b) comprises activating said pilot electronic power switching device in response to a transient in said current through said inductor.

18. For use with a multiphase DC-DC voltage converter having a controller which generates a pulse width modulation (PWM) switching signal that switchably controls operation of respective multiphase-associated switching circuits, a respective one of which contains first and second electronic power switching devices coupled between respective power supply terminals in a respective phase section of DC-DC converter, a respective phase section having a phase node thereof coupled through an inductor to a regulated voltage output voltage terminal, a method for deriving a measure of current through the inductor of an arbitrary phase section comprising the steps of:

(a) coupling a pilot electronic power switching device to one of said first and second electronic power switching devices of a first phase section, said pilot electronic switching device having a current flow path therethrough coupled to a current measurement terminal and measuring a first current through said pilot electronic power switching device;

(b) measuring a second current through an on-resistance of another of said first and second power switching devices of said first phase section;

(c) deriving a ratio of said first current to said second current to provide a current calibration constant Ks;

(d) measuring a third current through an on-resistance of one of said first and second power switching devices of a second phase section; and

(e) modifying said third current measured in step (d) in accordance with said current calibration constant Ks derived in step (c) to realize a fourth, calibrated current representative of the actual current through the inductor of said second phase section.

19. The method according to claim 18, wherein step (a) comprises time division multiplexing the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices and measuring said first current through said pilot electronic power switching device.

20. The method according to claim 18, wherein step (a) comprises periodically time division multiplexing the activation of said pilot electronic power switching device relative to the activation of said one of said first and second electronic power switching devices.